CLAIMS

What is claimed is:

1. A multiple speed transmission for a motor vehicle, comprising:

a first input shaft;

a second input shaft concentric with the first input shaft;

an output shaft;

an auxiliary shaft;

a first clutch driveably connected to the first input shaft for driveably connecting and disconnecting the first input shaft;

a second clutch driveably connected to the second input shaft for driveably connecting and disconnecting the second input shaft;

first pairs of mutually engaged gears, a first member of each first pair being supported on the first input shaft, a second member of each first pair being supported on the output shaft;

second pairs of mutually engaged gears, a first member of each second pair being supported on the second input shaft, a second member of each second pair being supported on the output shaft;

a gear wheel supported on the auxiliary shaft and engaged with a gear of a second pair that is secured to the second input shaft;

a planetary gearset including a sun gear secured to the auxiliary shaft, a ring gear surrounding the sun gear, and planet pinions rotatably supported on a carrier and engaged with the ring gear and the sun gear, the ring gear being driveably engaged with a member of the first pair that is secured to the first input shaft; and

a third clutch for alternately holding the carrier against rotation and releasing the carrier.

2. The transmission according to Claim 1, wherein the gear wheel that is supported on the auxiliary shaft is secured to the auxiliary shaft.

3. The transmission according to Claim 1, wherein a first gear of the second pair that is secured to the second input shaft transmits torque to the gear of the second pair with which said first gear is engaged when a fourth forward speed is produced by the transmission.

4. The transmission according to Claim 1, wherein a first gear of the second pair that is secured to the second input shaft transmits torque to the gear of the second pair with which said first gear is engaged when a sixth forward speed is produced by the transmission.

5. The transmission according to Claim 1, wherein a first gear of the first pair that is secured to the first input shaft transmits torque to a gear of the first pair with which said first gear is engaged when a third forward speed is produced by the transmission.

6. The transmission according to Claim 1, wherein a first gear of the first pair that is secured to the first input shaft transmits torque to a gear of the first pair with which said first gear is engaged when a fifth forward speed is produced by the transmission.

7. The transmission according to Claim 5, wherein a first gear of the first pair that is secured to the first input shaft functions as an idler gear when a reverse speed is produced by the transmission.

8. The transmission according to Claim 6, wherein a first gear of the first pair that is secured to the first input shaft functions as an idler gear when a reverse speed is produced by the transmission.

9. The transmission according to Claim 3 , wherein the gear of a second pair that is supported on the second input shaft and engaged with the gear wheel is secured to the second input shaft.

10. The transmission according to Claim 4, wherein the gear of a second pair that supported on the second input shaft and engaged with the gear wheel is secured to the second input shaft.

11. The transmission according to any of Claim 5, wherein the gear of a second pair that is supported on the first input shaft and is engaged with the ring gear is secured to the first input shaft.

12. The transmission according to any of Claim 7, wherein the gear of a second pair that is supported on the first input shaft and is engaged with the ring gear is secured to the first input shaft.

13. The transmission according to Claim 1, further comprising a housing fixed against rotation, and wherein the third clutch engages the housing when reverse speed is produced by the transmission, and the third clutch releases the housing when the forward speeds are produced by the transmission.

14. The transmission according to Claim 13, wherein engagement of the carrier and the housing is a synchronized engagement.

15. The transmission according to Claim 1, further comprising:

first couplers secured to the output shaft, each first coupler including a displaceable sleeve for driveably connecting alternately a member of the first pairs to the output shaft; and

second couplers secured to the output shaft, each second coupler including a displaceable sleeve for driveably connecting alternately a member of the second pairs to the output shaft, thereby alternately selecting forward speeds to be produced by the transmission.

16. The transmission according to any of Claim 1, wherein the ring gear has internal teeth engaged with the planet pinions, and external teeth engaged with a member of a first pair that is supported on the first input shaft.

17. The transmission according to Claim 1, wherein the first input shaft is a solid shaft, and the second input shaft is a hallow sleeve shaft that surrounds the first input shaft over a portion of a length of the first input shaft.

18. A multiple speed transmission for a motor vehicle, comprising:

a first input shaft;

a second input shaft concentric with the first input shaft;

an output shaft;

an auxiliary shaft;

a first clutch driveably connected to the first input shaft for driveably connecting and disconnecting the first input shaft;

a second clutch driveably connected to the second input shaft for driveably connecting and disconnecting the second input shaft;

first pairs of mutually engaged gears, a first member of each first pair being secured to the first input shaft, a second member of each first pair being supported on the output shaft;

second pairs of mutually engaged gears, a first member of each second pair being secured to the second input shaft, a second member of each second pair being supported on the output shaft;

a gear wheel supported on the auxiliary shaft and engaged with a gear of a second pair that is secured to the second input shaft;

a planetary gearset including a sun gear secured to the auxiliary shaft, a ring gear surrounding the sun gear, and planet pinions rotatably supported on a carrier and engaged with the ring gear and the sun gear, the ring gear being driveably engaged with a member of the first pair that is secured to the first input shaft;

a third clutch for alternately holding the carrier against rotation and releasing the carrier;

first couplers secured to the output shaft, for driveably connecting to the output shaft a member of a first pair that is supported on the output shaft; and

second couplers secured to the output shaft, for driveably connecting to the output shaft a member of a second pair that is supported on the output shaft.